Chemical Safety Data Sheet MSDS / SDS

Acenaphthene SDS

Revision Date:2024-04-25 Revision Number:1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product name: Acenaphthene

CAS: 83-32-9

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: For R&D use only. Not for medicinal, household or other use.

Uses advised against: none

Company Identification

Company: Chemicalbook.in

Address: 5 vasavi Layout Basaveswara Nilayam Pragathi Nagar Hyderabad, India -500090

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SECTION 2: Hazards identification

Classification of the substance or mixture

Not classified.

GHS label elements, including precautionary statements

Signal word: No signal word

Hazard statement(s)

none

Precautionary statement(s)

Prevention

none

Response

none

Storage

none

Disposal

none

Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name:	Acenaphthene
Common names and synonyms:	Acenaphthene
CAS number:	83-32-9
EC number:	201-469-6
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap.

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth.

Most important symptoms/effects, acute and delayed

SYMPTOMS: Symptoms of exposure to this compound may include irritation of the skin, eyes, mucous membranes and upper respiratory tract. If ingested, it can cause vomiting. Chronic exposure may result in kidney and liver damage. ACUTE/CHRONIC HAZARDS: This compound is harmful by inhalation, ingestion or skin absorption. It is an irritant of the skin, eyes, mucous membranes and upper respiratory tract. When heated to decomposition it emits toxic fumes of carbon monoxide and carbon dioxide. (NTP, 1992)

Indication of immediate medical attention and special treatment needed, if necessary

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR if necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Naphthalene and Related Compounds

SECTION 5: Firefighting measures

Suitable extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.

Specific hazards arising from the chemical

Flash point data for this chemical are not available. It is probably combustible. (NTP, 1992)

Special protective actions for fire-fighters

Use water spray, dry powder, foam, carbon dioxide.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

Environmental precautions

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

Methods and materials for containment and cleaning up

ACCIDENTAL RELEASE MEASURES: Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided. Methods and materials for containment and cleaning up: Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

SECTION 7: Handling and storage

Precautions for safe handling

NO open flames. Closed system, dust explosion-proof electrical equipment and lighting. Prevent deposition of dust. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

Conditions for safe storage, including any incompatibilities

Separated from strong oxidants. Provision to contain effluent from fire extinguishing. Store in an area without drain or sewer access.Keep container tightly closed in a dry and well-ventilated place. Storage class (TRGS 510): Non Combustible Solids.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

Component	Acenaphthene
CAS No.	83-32-9
	Recommended Exposure Limit: 10 Hr Time-Weighted Avg: 0.1 mg/cu m (cyclohexane-extractable fraction). /Coal tar pitch volatiles/ NIOSH considers coal tar pitch volatiles to be potential occupational carcinogens. NIOSH usually recommends that occupational exposures to carcinogens be limited to the lowest feasible concentration. /Coal tar pitch volatiles/

Biological limit values

no data available

Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear safety goggles.

Skin protection

Protective gloves.

Respiratory protection

Use local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	Acenaphthene is a white needles. Melting point 93.6°C. Soluble in hot alcohol. Denser than water and insoluble in water. Hence sinks in water. May irritate skin and mucous membranes. Emits acrid smoke and irritating fumes when heated to decomposition. Derived from coal tar and used to make dyes, pharmaceuticals, insecticides, fungicides, and plastics.
Colour:	White needles
Odour:	no data available
Melting point/freezing point:	122°C(lit.)
Boiling point or initial boiling point and boiling range:	241°C(lit.)
Flammability:	Combustible.
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	38°C(lit.)
Auto-ignition temperature:	>450 °C
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	no data available
Solubility:	less than 1 mg/mL at 68° F (NTP, 1992)
Partition coefficient n-octanol/water:	log Kow = 3.92
Vapour pressure:	10 mm Hg (131 °C)

Density and/or relative density:	1.069
Relative vapour density:	5.32 (vs air)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

NIOSH considers coal tar pitch volatiles to be potential occupational carcinogens. Coal tar pitch volatiles
On combustion, forms toxic gases including carbon monoxide. Reacts with strong oxidants.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

This chemical is a combustible solid.Dust explosion possible if in powder or granular form, mixed with air.ACENAPHTHENE is incompatible with strong oxidizing agents. Incompatible with ozone and chlorinating agents. Forms crystalline complexes with desoxycholic acid (NTP, 1992).

Conditions to avoid

no data available

Incompatible materials

Incompatible materials: Strong oxidizing agents.

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions - Carbon oxides.

SECTION 11: Toxicological information

Acute toxicity

Oral: no data available

Inhalation: no data available

Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

See Notes.

Aspiration hazard

A harmful concentration of airborne particles can be reached quickly when dispersed.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50; Species: Lepomis macrochirus (bluegill); Conditions: static bioassay; Concentration: 1,700 ug/L for 96 hr

Toxicity to daphnia and other aquatic invertebrates: EC50; Species: Daphnia magna (Water Flea) age <24 hr; Conditions: freshwater, static, dissolved oxygen > or =2 mg/L; Concentration: 1275 ug/L for 48 hr (95% confidence interval: 1102-1475 ug/L); Effect: intoxication, immobilization /> or =97% purity

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

AEROBIC: Acclimated mixed cultures in mineral salt media were able to degrade 50% of a crude oil containing acenaphthene within 48 hr(1). Grab samples of groundwater aquifer soil that had acclimated to creosote wastes containing acenaphthene were able to degrade acenaphthene at concentration between 0.02 and 0.12 ppm under aerobic conditions at 25 deg C for a 56 day period at an average rate of 130% per week(2); an average loss of 5.0% per week was observed for autoclaved controls(2). Unacclimated material from the same aquifer degraded acenaphthene at an average rate of 6.6% per week; however, autoclaved controls lost acenaphthene at an overall rate of 9.2% per week(2). The biotransformation half-life for 2 mg/L of acenaphthene in hard water with zero suspended solids was 24.8 days(3). The half-lives for 2 mg/L of acenaphthene in hard water with suspended solid concentration of 52, 403 and 601 mg/L from Roselawn Pond, Denton, TX were 3.52, 4.03 and 2.23 days, respectively(3). The half-lives for 2 mg/L of acenaphthene in hard water with suspended solid concentrations of 83, 397 and 591 mg/L from Pat Mayseake, Paris, TX were 4.91, 1.20 and 0.83 days, respectively(3); all half-lives were corrected for abiotic losses by controls(3). Acenaphthene, present at 100 mg/L, reached 0% of its theoretical BOD in 4 weeks using an activated sludge inoculum at 30 mg/L in the Japanese MITI test(4).

Bioaccumulative potential

After a 28 day exposure to an average water concentration of 8.94 ug/L, the log BCF of acenaphthene in the tissue of bluegill sunfish (Lepomis macrochirus) was 2.59 (BCF of 389(1,2). A BCF range of 254-1270 was measured in fish for acenaphthene(SRC), using carp (Cyprinus carpio) which were exposed over an 8-week period to 0.003-0.03 mg/L(3). According to a classification scheme(4), the BCF range suggests the potential for bioconcentration in aquatic organisms is high to very high(SRC), provided the compound is not metabolized by the organism(SRC). PAHs may not bioconcentrate in aquatic organisms which contain microsomal oxidase, such as fish, as this enzyme enables the rapid metabolism of certain polycyclic aromatic hydrocarbons(4). Some marine organisms have no detectable aryl hydrocarbons hydroxylase enzyme systems, namely: phytoplankton, certain zooplankton, mussels (Mytilus edulis), scallops (Placopecten sp), and snails (Littemia littorea)(5). Those organisms which lack a metabolic detoxification

enzyme system, tend to accumulate polycyclic aromatic hydrocarbons(5).

Mobility in soil

Acenaphthene has a reported experimental log Koc value of 3.59 (Koc of 3890) in soil(1). Desorption-sorption tests using 11 soils found a log Koc range of 3.40-5.33 (Koc of 2510-2.14X10+5)(2). The log Koc of acenaphthene in 16 historically contaminated sediments ranged from 2.97 to 5.87 (Koc of 933 to 7.4X10+5 with a median of 4.39 (Koc of 2.45X10+4)(3). According to a classification scheme(4), the Koc range in soil suggests that acenaphthene is expected to have slight to no mobility in soil.

Other adverse effects

no data available

SECTION 13: Disposal considerations

Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

UN Number

ADR/RID: UN3077 (For reference only, please check.)
IMDG: UN3077 (For reference only, please check.)
IATA: UN3077 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (For reference only, please check.)
IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (For reference only, please check.)

IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (For reference only, please check.)

Transport hazard class(es)

ADR/RID: 9 (For reference only, please check.)
IMDG: 9 (For reference only, please check.)
IATA: 9 (For reference only, please check.)

Packing group, if applicable

ADR/RID: III (For reference only, please check.)
IMDG: III (For reference only, please check.)
IATA: III (For reference only, please check.)

Environmental hazards

ADR/RID: Yes
IMDG: Yes
IATA: Yes

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

European Inventory of Existing Commercial Chemical Substances (EINECS)

Listed.

EC Inventory

Listed.

United States Toxic Substances Control Act (TSCA) Inventory

Listed.

China Catalog of Hazardous chemicals 2015

Listed.

New Zealand Inventory of Chemicals (NZIoC)

Listed.

(PICCS)

Listed.

Vietnam National Chemical Inventory

Listed.

IECSC)

Listed.

Korea Existing Chemicals List (KECL)

Listed.

SECTION 16: Other information

Abbreviations and acronyms

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

References

IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home

HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm

IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple

ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg

Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp

ECHA - European Chemicals Agency, website: https://echa.europa.eu/

Other Information

Acenaphthene occurs as a pure substance and also as a component of polyaromatic hydrocarbon (PAH) mixtures. Human population studies have associated PAH's exposure with cancer and cardiovascular diseases. Insufficient data are available on the effect of this substance on human health, therefore utmost care must be taken.

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any